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Heterotrophic leaching of metals from Indian chromite mining overburden

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Abstract

The chromite mines spread over Sukinda ultramafic belt of Odisha, India, generate huge amount of overburden loaded with chromium along with nickel, iron and cobalt. During the present study, heterotrophic and acidogenic microbes inherent to the area (eight fungi and three bacteria) were isolated and identified as suitable for leaching of metal values from overburden samples. Fungal isolates in general, were found to be better leaching agents as compared to the bacteria. *Aspergillus niger* mut. *schimanni* SUK101, the most potent isolate leached 54.1% Ni, 29.4% Cr, 22.1% Fe and 25.1% Co, whereas, *Pseudomonas* sp. SUK201 leached only 15% Ni,

6.01% Cr, 5.29% Fe and 4% Co. Time course studies showed promising metal solubilisation by *A. niger* SUK101, which could be a potential agent for bioleaching.